JUN 0 2 1993 ENGINEERING DATA TRANSMITTAL

Page 1 of __]

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Originator

Authorized Representative Date for Receiving Organization

Short 6-1-83
Cognizant/Project Date
Engineer's Manager

21. DOE APPROVAL (if required) Ltr. No.

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Date Received:	1	NFORMAT	ION RE	LEASE	REQU	EST		Reference: WHC-CM-3-4
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SUPPORTING DOCUMENT	1. Total Pages 4				
2. Title HEPA Vacuum Vapor Extraction Characterization Unit Test Specification	3. Number MHC-SD-EN-TP-027	4. Rev No.			
5. Key Words HEPA Vacuum, Vapor Extraction	6. Author Name: J.D. Faincher Signature Organization/Charge Code	<i>5/27/</i> 93 81710/P121N			

7. Abstract

Test specifications and operating procedures are presented for operating a HEPA vacuum cleaner modified for wellhead vapor extraction. This work is performed in support of the Hanford 200 West Carbon Tetrachloride Expedited Response Action.

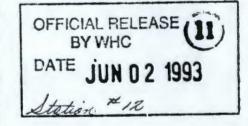
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9. Impact Level 4

10. RELEASE STAMP



HEPA Vacuum Vapor Extraction Characterization Unit Test Specification

1.0 PURPOSE

A high-efficiency particulate air (HEPA) vacuum cleaner has been modified to perform pilot tests on selected wells at the 200 West Area Carbon Tetrachloride Expedited Response Action. The tests are being performed to collect information on flows, vacuums, and Volatile Organic Compound (VOC) concentrations from the selected wells. The test data will be used to select optimum locations for the placement of full-size extraction units for soil remediation.

2.0 REQUIREMENTS

A vacuum must be applied to the selected wellheads to create a flow through the well to the instruments, which record flow rates, vacuum, and VOC concentrations. The tests will utilize a modified Euroclean UZ 948¹ HEPA vacuum cleaner operated by qualified personnel under the direction of the Field Team Leader.

Due to the unique nature of this activity Section 9.1 of WHC-CM-7-8 does not apply to these tests. However, at the discretion of the FTL, 9.0 and 10.0 of Section 9.1 may be followed should pre-filter clean out and/or HEPA filter replacement be required.

3.0 DESCRIPTION OF TEST

3.1 SITE SETUP

A restricted access area surrounding the HEPA vacuum unit and granular activated carbon (GAC) canisters will be established before operations begin and maintained until operations end.

3.2 EQUIPMENT INSPECTION

Before each day's operations begin, the following will be inspected: hoses, fittings, connections on the HEPA vacuum unit, the wellhead connection, and connections to and from the GAC canisters. Inspection will be documented in a controlled logbook in accordance with WHC-CM-7-7 E[I 1.5.

¹Euroclean, Itasca, Illinois

3.3 OPERATION

To start the HEPA vacuum system, open the inlet ball valve. Start the sampler pump and switch on the vacuum motor (switch for motors 1 and 2). Monitor the pressurized portion of the system with a photoionization detector equipped with an 11.8-eV lamp, looking for volatile leaks. Monitor the nonpressurized portion of the system (look and listen for vacuum leaks).

3.4 DATA

Data will be recorded as directed in Section 7.0.

3.5 CRITERIA

Equipment must be functioning properly before testing commences. Testing must be performed in accordance with the Hazardous Waste Operations Permit, the Safety Assessment Document, and the Radiation Work Permit (where applicable).

At no time shall the flow in the system immediately in front of the GACs exceed 250 cfm. Use the recirculation valve to adjust the flow rate.

3.6 SHUTDOWN

At the end of a testing event, perform the following: turn off vacuum motor and sampling pump, close inlet ball valve, remove connection (if required), secure well, cap any hoses connected to GAC canisters, and cap any open GAC canister connections. Secure the site before final exit.

4.0 SAFETY

Monitoring for VOCs in the breathing zone shall be performed as required in the site specific safety plan.

Fuel storage (other than that contained in the generator fuel tank) shall be at least 50 feet from GACs. Generators shall be at least 25 feet from GACs.

Do not operate the HEPA vacuum unit during wet weather unless weather protection is provided for the electrical components.

5.0 SPECIAL EQUIPMENT

A photoionization detector equipped with an 11.8-eV lamp calibrated in accordance with WHC-CM-7-7 EII 3.2 is required during all wellhead testing.

6.0 ACCEPTANCE CRITERIA

Performance will be considered satisfactory if flows can be drawn from wells and through the instruments.

7.0 DATA REQUIRED

Data will be recorded in a controlled logbook in accordance with WHC-CM-7-7 EII 1.5. Data required include flow rate, vacuum, and VOC concentrations. Temperature and humidity of the flow will be recorded if instrumentation is available. Data shall be recorded (at a minimum) at startup, hourly, and immediately before shutdown. Monitoring of the point of discharge (sample port downstream of the final GAC) is required at least once a day.

8.0 EXPECTED RESULTS

Results are expected to be below 270 cfm (flow), below 63 inches water column (vacuum), and below 3,000 ppmv (VOC).

9.0 EMERGENCY RESPONSE

Follow the VOC-Arid ID HWOP. Secure the area if possible. Contact expedited response action vapor extraction personnel for assistance in notifications, spill response, and other necessary response.

10.0 REFERENCES

- WHC-CM-7-7, Environmental Investigations and Site Characterization Manual.
- WHC-CM-7-8, Environmental Engineering and Geotechnology Function Procedures.

 Section 9.1, "Radiological Vacuum Cleaner Usage."
- WHC-SD-EN-AP-114, <u>FY 93 Wellfield Enhancement Workplan for the Carbon Tetrachloride ERA</u>.
- WHC-SD-EN-SAD-004, Rev. 1-A, <u>Safety Assessment for the 200 West Area Expedited</u>
 Response Action for remediation of Carbon Tetrachloride.
- VOC-Arid ID HWOP dated 3/10/93.